

Community	Current Treatment Technology	Would the criteria apply? Or is there dilution capability?	Design Flow (MGD)	Actual Flow (MGD)	Community Population (Census 2010)	Number of Households (American Community Survey 2005-2009)	Median Household Income (2010) - American Community Survey	Current average household sewer bill per year (2008 / 2011)	Current average sewer fee as % of MHI	Notes	Capital cost (million dollars) to meet the numeric nutrient criteria (WERF)	Annual Capital cost to meet the numeric nutrient criteria (\$4 WERF)	Annual Operations costs to meet the numeric nutrient criteria (\$4 WERF)	Annual Capital and Operations cost (\$)	Annual Additional Cost per Household (increase in sewer rate)	Predicted average household sewer fee to meet criteria	Expected % MHI to Meet Base Numeric Nutrient Criteria (plus current wastewater fees)	Scenario A	Scenario B	Percent increase in Wastewater bill
Kalispeil	BHR (modified Inhammsburg); 3.1 to 5.4 MGD; avg. 12 mg/l TP; 10 mg/l TN	Yes. EOP: Ashby Creek	5.4	3.10	19,927	7,705	\$39,953.00	\$361.68	0.91%	Sewer rates obtained from City in 2011. Plant = WRF Level 2.	\$4.24	\$9,796,048	\$1,782,905	\$8,539,013	\$1,108	\$1,470	3.68	4.73	4.01	306%
Bozeman	some BHR now; 5-stage Barendse; new plant will be BHR (1 mg/TP; 3 mg/l TN starting in 2013); current 5.8 MGD; increasing to 13.9 mg/l	Yes. Also Calumet TMDL in the works	11.8	5.80	37,280	14,614	\$41,661.00	\$372.00	0.89%	Sewer rates obtained from City in 2011. Plant = WRF Level 2. Really Level 3 for TN and 1 for TP	215.28	\$17,265,456	\$3,335,870	\$20,601,326	\$1,410	\$1,782	4.28	5.64	4.70	379%
Helena	BHR; 1 mg/TP; 10 mg/l TN; design capacity of 5.4; current discharge = 3.9 MGD	Yes. WEA set in TMDL based on numeric criteria	5.4	3.00	28,190	12,337	\$47,152.00	\$277.80	0.59%	Sewer rates obtained from City in 2013. Plant = WRF Level 1.	102.60	\$8,228,520	\$1,834,950	\$10,063,470	\$816	\$1,094	2.32	3.00	2.53	294%
Butte	Current technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BHR; current design is 6.3 MGD; talking about lowering to 6.1 MGD. Sewer Fee based on DEC estimates. Included in current fee is \$27 million upgrade in new capital costs and \$1.125 million in O&M costs which would bring them to 5 TN and 0.1 TP	Yes. EOP	8.5	4.00	33,525	14,041	\$37,335.00	\$360.00	0.96%	Sewer Fee based on DEQ estimates. While current monthly fee is \$13.50, the \$27 million upgrade in new capital costs plus \$1.125 million in additional O&M costs which would bring them to 5 TN and 0.1 TP (WERF 3) would raise rates to \$30 per month	118.15	\$9,475,630	\$1,877,200	\$11,352,830	\$809	\$1,169	3.13	4.00	3.40	225%
Billings	2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max.	Yes. Discharge into the Yellowstone River.	26	26	104,170	41,841	\$45,004.00	\$218.28	0.49%	The numbers for Billings and Great Falls (treatment levels, treatment costs etc.) were obtained from HDR.	312.50	\$38,095,000	\$15,902,900	\$53,997,900	\$1,291	\$1,509	3.35	4.32	3.66	591%
Missoula	advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; meets Clark Fork criteria w/ missing zone. 8.2 mg/TP; 0.16 - 0.4 mg/l TP; get a missing zone; meeting criteria currently. BHR. Design flow = 12 MGD; actual flow = 9 MGD. (designed for 10 and 1). (HDR)	Yes. With missing zone. Currently meeting criteria after missing zone.	12	9	66,788	27,553	\$34,319.00	\$152.14	0.44%	Sewer rates obtained from city 2011 values.	88.80	\$7,121,760	\$2,614,050	\$9,735,810	\$353	\$505	1.47	1.83	1.59	232%
Great Falls	conventional 2ndary activated sludge (max 21 MGD; avg. 10 MGD)	Yes. Missouri River	26	26	58,505	23,998	\$40,718.00	\$187.20	0.46%	At WERF 1, The numbers for Billings and Great Falls (population, treatment levels, etc.) were obtained from HDR.	312.50	\$38,095,000	\$15,902,900	\$53,997,900	\$2,250	\$2,437	5.99	7.86	6.57	1202%
Livingston	discharges into the Yellowstone; permit renewed in 2010; mechanical plant w/ 2 primary clarifiers, 3 rotating biological contactors, UV, installing co-composting. O&M shows 11 mg/TP average (20 mg/TP for May) and 2 mg/TP (3 mg/TP for May)	Yes. Discharge into the Yellowstone River.	5	2	7,044	3,188	\$35,689.00	\$600.00	1.68%	Assume WERF Tier 1	95.00	\$7,619,000	\$1,223,300	\$8,842,300	\$2,774	\$3,374	9.45	12.67	10.46	462%
Miles City	2ndary treatment plus oxidation ditch. 2011 permit. Algae plant study to remove nutrients. Extended aeration system w/2 oxidation ditches; rotating brush aerators; 2 clarifiers and chlorine basin. TN avg of 23.5 mg/l; TP avg. 3.6 mg/l.	Yes. Discharge into the Yellowstone River.	3.7	2	8,410	3,518	\$37,554.00	\$236.10	0.63%	Assume WERF Tier 1	70.30	\$5,638,060	\$1,223,300	\$6,861,360	\$1,950	\$2,186	5.82	7.87	6.46	826%
Hamilton	BHR facility; 1 w/ extended aeration system. Oxidation ditch w/ rotating brush aerators. 3 clarifiers. Upgraded in 2010. TN avg 5.5 mg/l; TP avg. 5 mg/l.	Yes	1.98	0.88	4,348	2,092	\$25,161.00	\$276.00	1.10%	Assume WERF 2 (since TN gets to WERF 3 and TP WERF 1)	24.75	\$3,017,124	\$423,602	\$3,440,726	\$1,645	\$1,921	7.63	10.39	8.49	596%
Lewistown	BHR plant. Focus on TP removal. 0.8 mg/l TP; 3.4 mg/l TN.	Yes	2.5	1.5	5,901	2,727	\$31,729.00	\$387.60	1.22%	Assume WERF 3 (based on current treatment levels)	18.50	\$2,786,950	\$691,950	\$3,478,900	\$1,276	\$1,663	5.24	6.79	5.73	329%
Havre	Discharges into the Milk River. Permit renewed in 2011. Activated sludge facility with effluent chlorination. 2006-2010 data showed avg. TP of 3.4 (TN not required); 2011 DMRI showed TN of 19.4 mg/l; TP of 1.3 mg/l.	Yes	1.8	1.38	9,310	3,709	\$43,577	\$240.00	0.55%	Assumed WERF Level 1 and 5,000 gallons usage. Rate is \$9.15 for plus \$2.15 per 1,000 gallons	\$34.20	\$2,742,840	\$844,077	\$3,586,917	\$967	\$1,207	2.77	3.58	3.02	403%
Columbia Falls	Newer plant. Designed to achieve 8 mg/l TN	Yes	0.766	0.37	4,688	1,621	\$38,750	\$532.20	1.37%	Upgrade to RO	\$10.65	\$853,921	\$938,600	\$1,792,521	\$1,106	\$1,638	4.23	4.88	4.43	208%
Manhattan	Discharges into Oka Ditch. Permit renewed in 2010. Denitrification with fixed film suspended growth system, clarifiers and aerobic sludge digestion, UV. DMRI data from winter quarter shows 11 mg/l TN and 1 mg/l TP. 2008-2010 showed avg. TN of 14 mg/l TN and 4 mg/l TP.	Yes	0.6	0.4	1,520	523	\$50,729	\$362.40	0.71%	Assumed WERF Level 2. Correct? Paul	\$9.36	\$750,672	\$92,024	\$842,696	\$1,611	\$1,974	3.89	5.25	4.32	445%
Lolo	Lolo, TN is generally less than 38 mg/l and TP less than 7. Generally having loadings for Lolo. Sewer rates - Lolo \$38.25-ish/no - (RSID) based on property values	Yes	0.34	0.38	3,892	1,060	\$46,442	\$363.00	0.78%	Level 1.	\$6.46	\$518,092	\$232,427	\$750,519	\$708	\$1,071	2.31	2.81	2.46	195%
Stevensville	Stevensville is generally a little better with TN generally below 28 and TP less than 4.	Yes	0.3	0.29	1,809	795	\$53,776	\$535.08	1.58%		\$3.75	\$300,750	\$125,512	\$426,262	\$536	\$1,071	3.17	3.71	3.34	100%
Philipsburg	lagoon to simple mechanical system - ref: Gary Swanson, consulting engineer- 10TN, 2TP	Yes.	0.2		820	399	\$31,375.00	\$200.00	0.64%	Assume WERF 1	\$3.80	\$ 304,760.00	\$61,650.00	\$366,410.00	\$2,171.45	\$2,373	7.56	8.73	7.92	1086%
Cut Bank	Lagoon.	Yes	0.643		2,869	1,290	\$44,833	\$138.48	0.31%	4000 gallons. Base rate \$9.48 at 3000 gallons plus \$2.06 for next 1,000 gallons	\$14.02	\$ 1,124,195.48	228,290.40	\$1,352,485.88	\$1,048.44	\$1,187	2.65	3.58	2.94	757%
Deer Lodge	Moving from an existing lagoon to mechanical plant with land application. Ref. planning documents - To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork	Yes	3.3		3,111	1,522	\$40,320	\$409.56	1.02%	Moving from an existing lagoon to mechanical plant with land application. Ref. planning documents - To get to variance only. Because this would be a land application system, so theoretically, the N and P would be zero to the Clark Fork	\$71.94	\$1,201,140.00	\$555,493.00	\$1,856,638.00	\$1,193.59	\$1,603	3.98			291%
Glenade	domestic WW lagoon; 3 cell facultative; current O&M costs are ~\$5.8-10/capital costs for new plant. O&M increase of ~\$300,000. new avg. 1.15 MGD. PER completed to upgrade to membrane at \$38 or BHR about	Yes	1.3		4935	1883	\$42,821	\$213.96	0.50%		\$36.79	\$2,950,558.00	\$391,740.00	\$3,342,298.00	\$1,774.99	\$1,989	4.64	6.40	5.19	830%
Red Lodge	Lagoon.	Yes	1.2		2125	1055	\$50,123	\$305.28	0.61%	Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.	\$26.16	\$2,098,032.00	\$308,112.50	\$2,406,144.50	\$2,280.72	\$2,586	5.16	7.06	5.75	747%
Big Fork	Lagoon.	Yes	0.5	0.3	4270	1708	\$44,398	\$80.36	1.31%		\$10.90	\$874,380.00	\$142,215.00	\$1,016,595.00	\$595.08	\$1,175	2.65	3.20	2.82	103%
Highwood	Lagoon.	Yes	0.026	0.015	270	53	\$62,614	\$60.00	0.96%		\$0.57	\$45,457.80	\$7,110.75	\$52,568.55	\$991.85	\$1,092	2.54	3.20	2.75	165%
Circle	Lagoon.	Yes	0.16	0.065	635	234	\$29,000	\$39.56	0.90%		\$3.49	\$279,737.60	\$30,813.25	\$310,550.85	\$1,037.14	\$1,087	5.47	7.45	6.09	511%

NOTE: Operation costs include energy and chemical costs only and do not include labor and maintenance cost. As such, these numbers are on the low side.

NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not reflect the site-specific conditions at each plant.

NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.8802 conversion factor)

NOTE: MHI is based on data from Montana CEIC based on 2010 estimates.

Indicates rough estimates; need to verify  
Big Fork number of household based on population divided by 2.5